

Experiment 1: elektrische geleidbaarheid in twee dimensies (10 punten)

Noteer de cijfers van 0 tot 9 in de volgende tabel:

| | | | | | | | | | |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | |

Deel A. vierpunts-meter (4PP) metingen (1.2 punten)

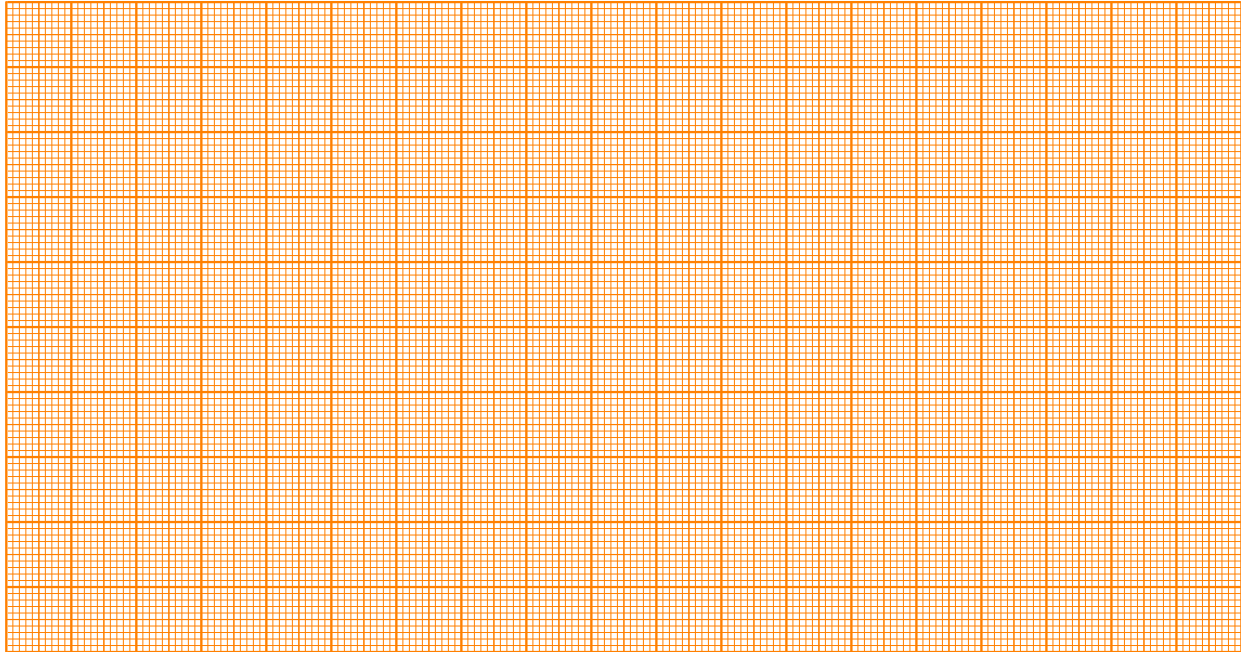
A.1 (0.6 pt)

$s =$

| I | V | I | V |
|-----|-----|-----|-----|
| | | | |
| | | | |
| | | | |

Zet je metingen in **Grafiek A.1**.

Grafiek A.1: I vs. V



A.2 (0.2 pt)

$R =$

A.3 (0.4 pt)

$\Delta R =$

Deel B. soortelijke bladweerstand (0.3 punten)

B.1 (0.3 pt)

$\rho_{\square} \equiv \rho_{\infty} =$

Deel C. Metingen voor verschillende afmetingen van het sample (3.2 punten)

C.1 (3 pt)

$s =$

$\rho_{\infty} =$

De lege kolommen kunnen gebruikt worden voor tussenresultaten.

| w/s | | | | | | $R(w/s)$ |
|-------|--|--|--|--|--|----------|
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C.2 (0.2 pt)
Gebruik Tabel **C.1** voor je gegevens.

Deel D. Geometrische correctie factor (1.9 punten)

D.1 (1.0 pt)

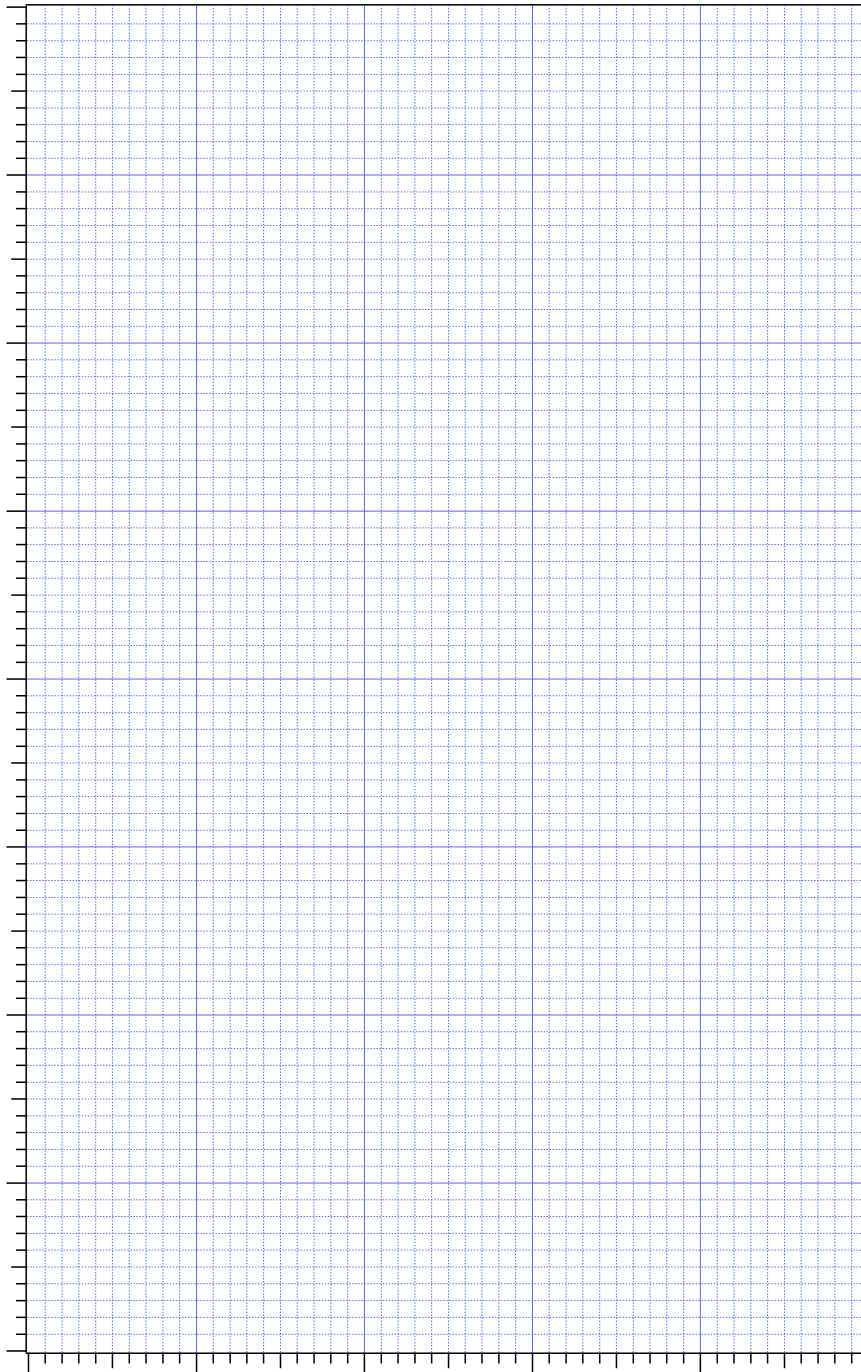
Maak met je metingen een grafiek op het daartoe geëigende grafiekpapier: lineair (Graph **D.1a**), semi-logaritmisch (**D.1b**) **or** dubbel-logaritmisch (**D.1c**) op de volgende pagina's.

D.2 (0.9 pt)

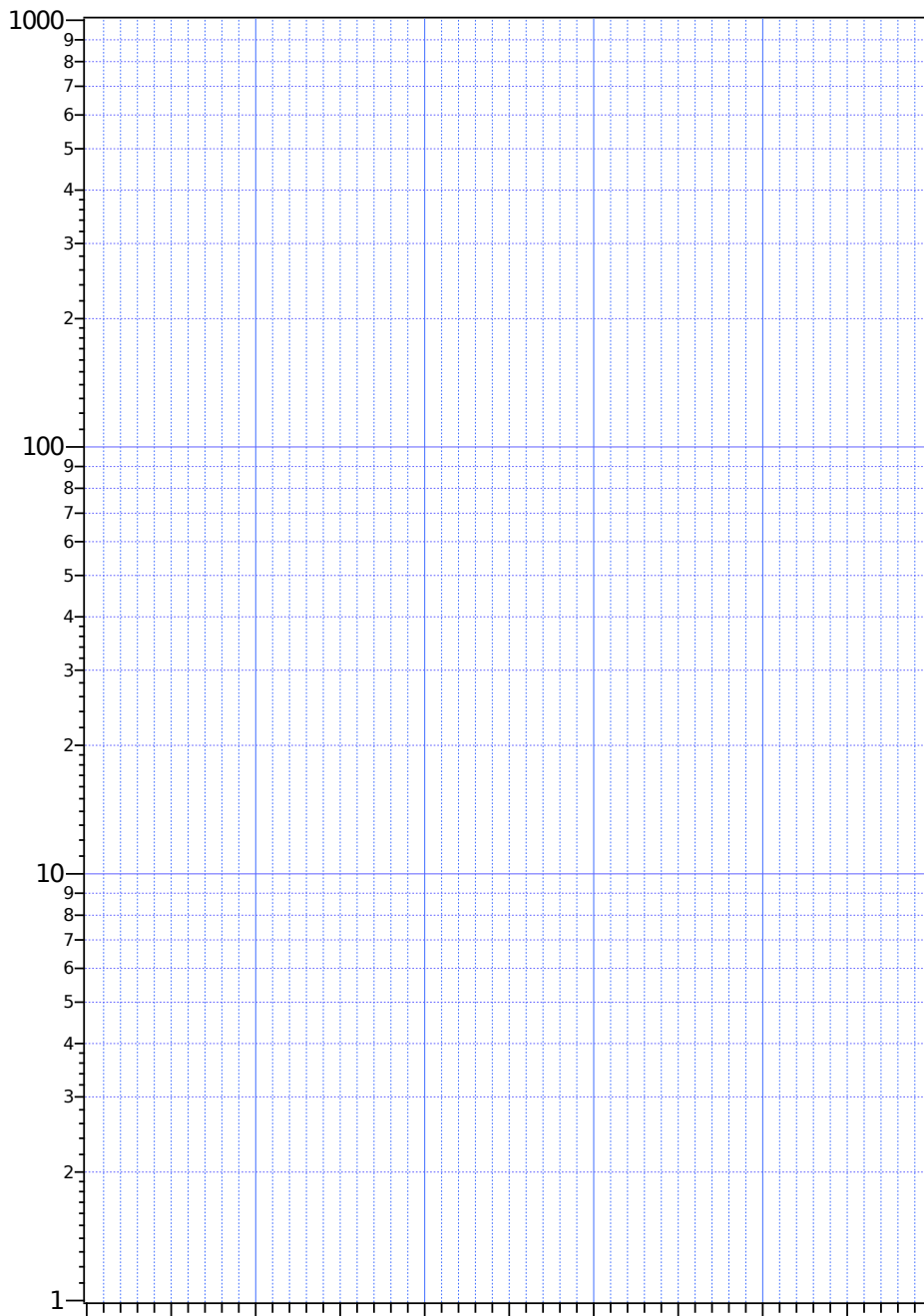
$a =$

$b =$

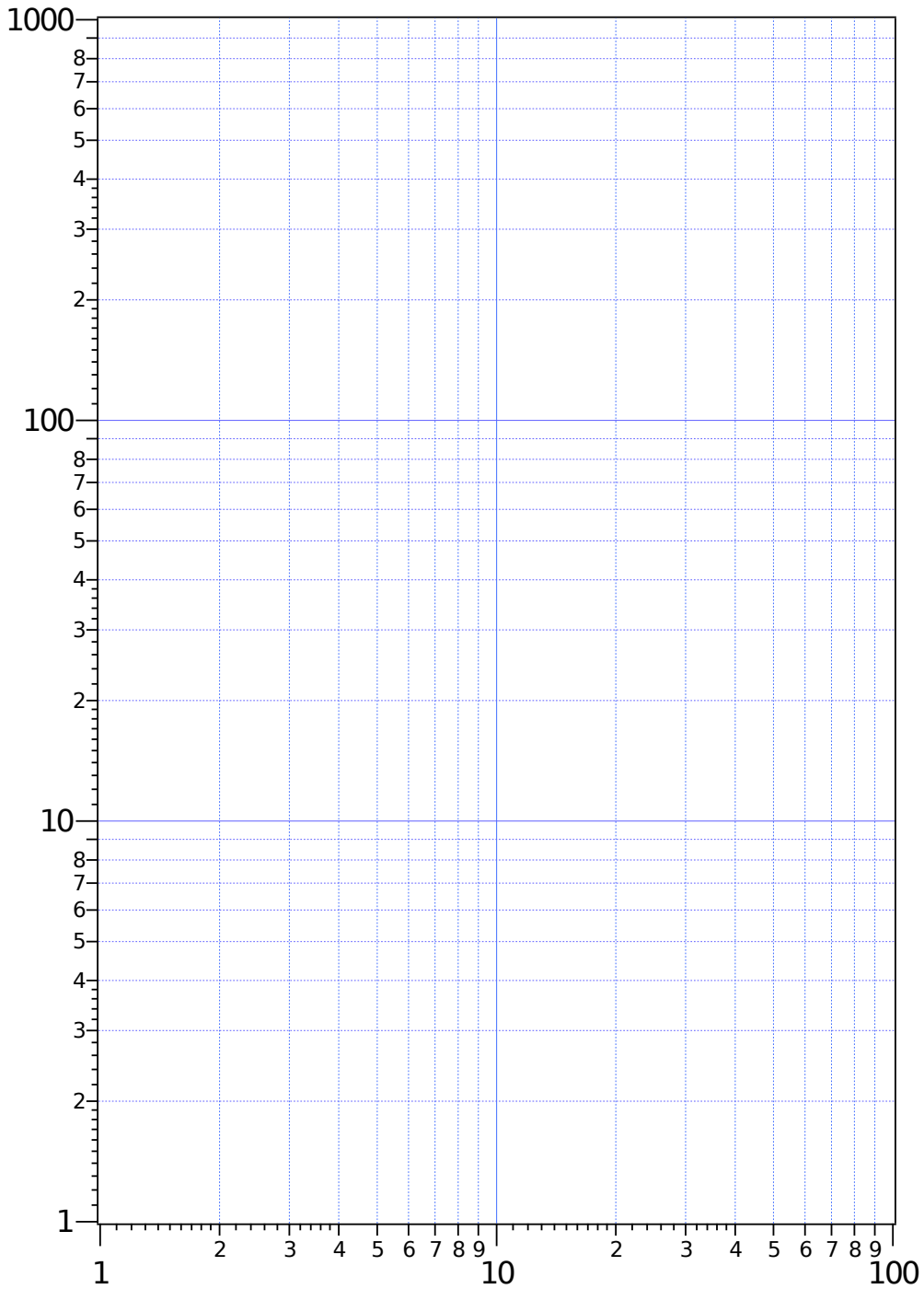
Graph D.1a: lineaire schaal:



Graph D.1b: semi-log schaal:



Graph D.1c: dubbel-log schaal:



Deel F. The silicium wafer en de van der Pauw-methode (3.4 punten)

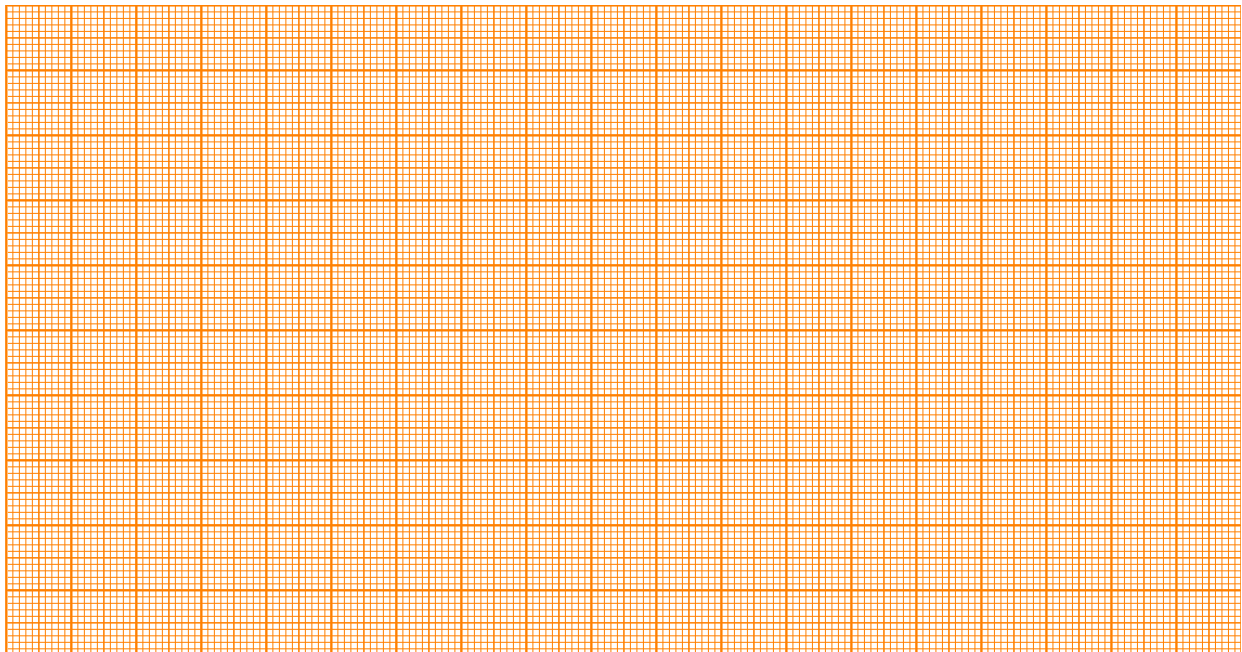
Noteer hier het nummer van je wafer:

E.1 (0.4 pt)

| I | V | I | V |
|-----|-----|-----|-----|
| | | | |
| | | | |
| | | | |

E.2 (0.4 pt)

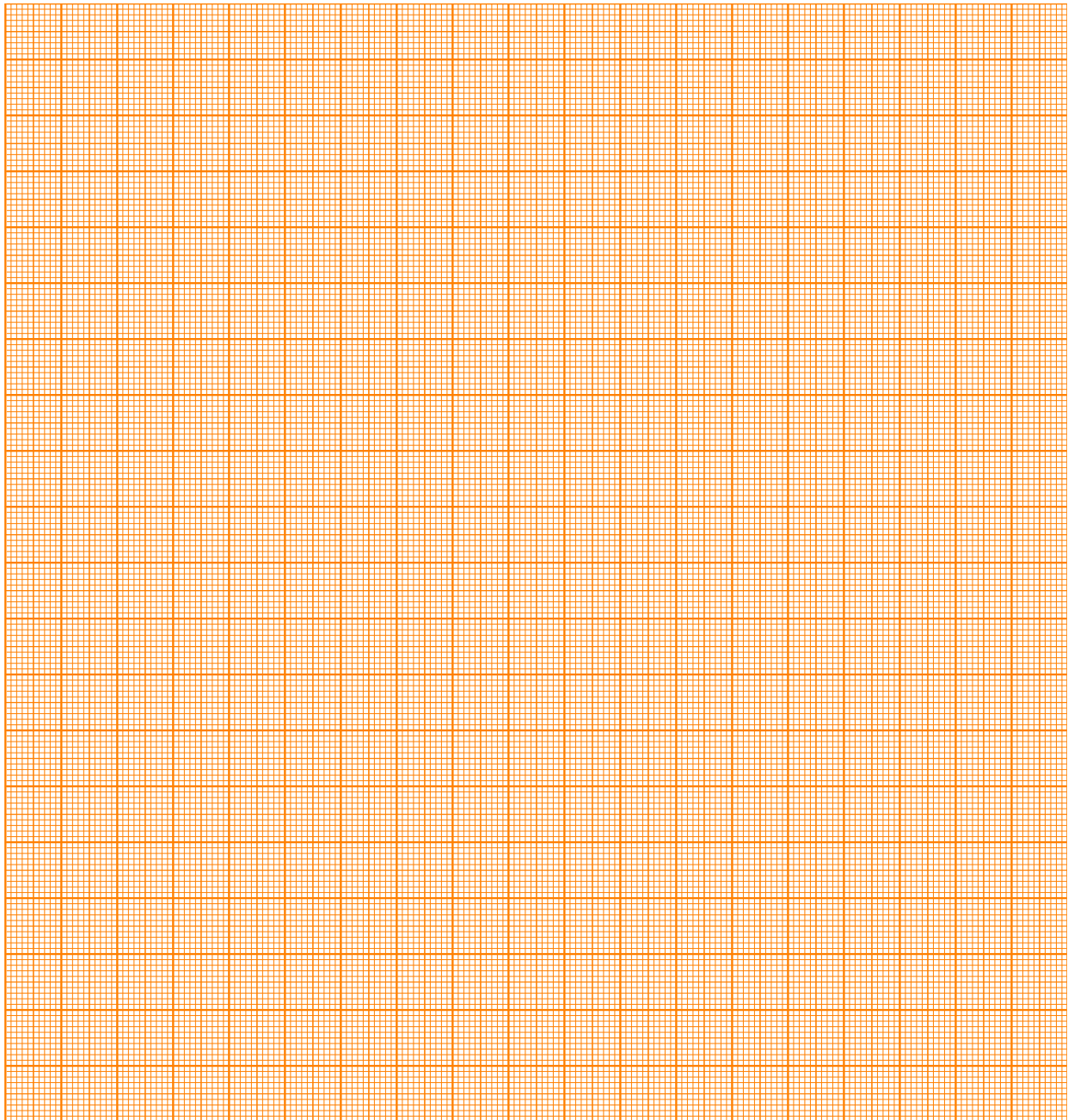
Grafiek E.2: I vs V



$R_{4PP} =$

E.7 (0.5 pt)

Graph F.7: I vs. V



$\langle R \rangle =$

E.8 (0.4 pt)
Berekening:

$$\rho_{\square}(\text{vdP}) =$$

E.9 (0.1 pt)

$$\frac{\Delta\rho_{\square}}{\rho_{\square}(\text{vdP})} = \quad = \quad \%$$

E.10 (0.1 pt)

soortelijke weerstand van de Cr thin film $\rho =$